2.1 The Rectangular Coordinate System

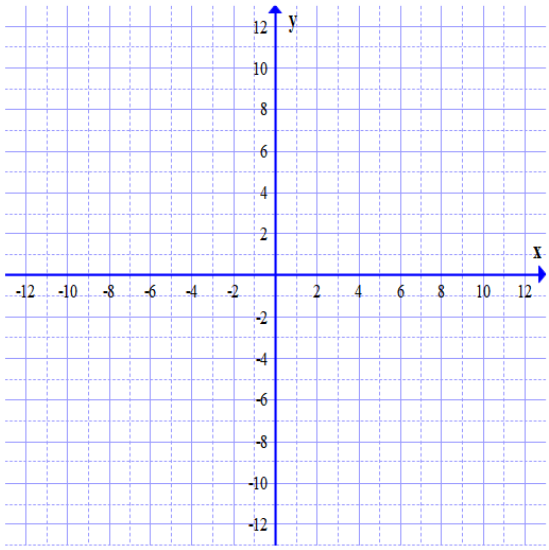
▼ Graphing by Plotting Points

1. Find ordered pair solutions.
   - Choose values for one variable
   - Substitute the value for the chosen variable
   - Find the value of the other variable by simplifying or solving
2. Plot the ordered pairs solutions
3. Draw the line or curve that connects the ordered pairs.

▼ Examples of Graphing by Plotting Points

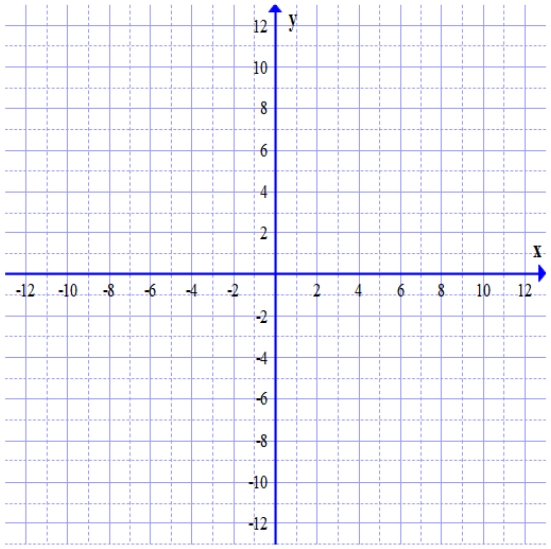
▼ Example 1: Graph $y = 4x - 3$ by plotting points

x	y	(x,y)



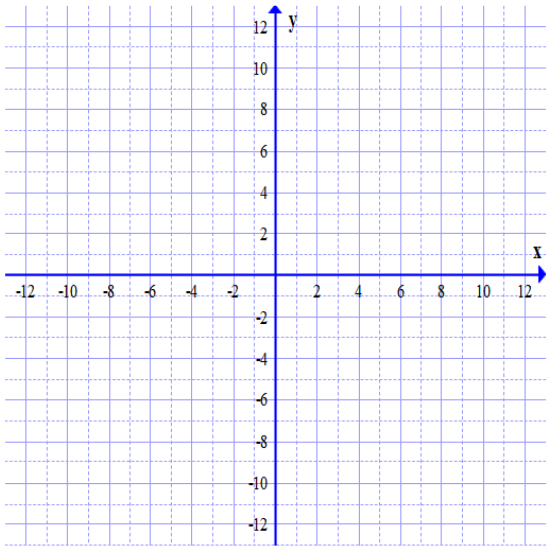
▼ Example 2: Graph $y = \frac{1}{2}x - 2$ by plotting points

x	y	(x,y)



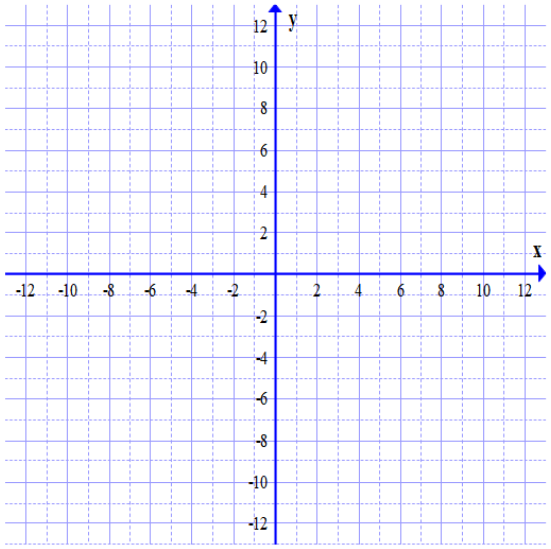
▼ Example 3: Graph $y = x^2$ by plotting points

x	y	(x,y)



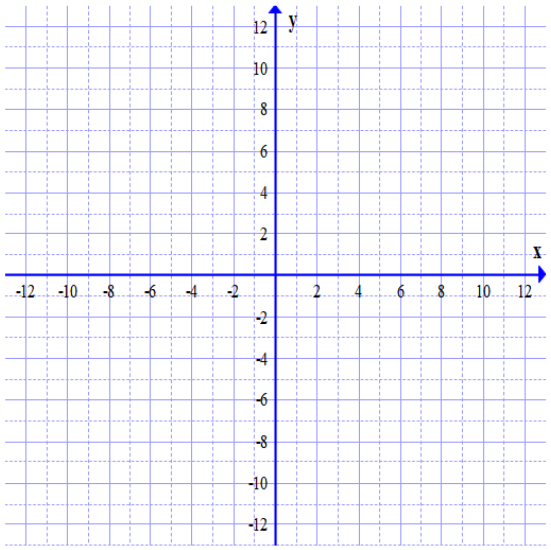
▼ Example 4: Graph $y = -x^2 + 3$ by plotting points

x	y	(x,y)



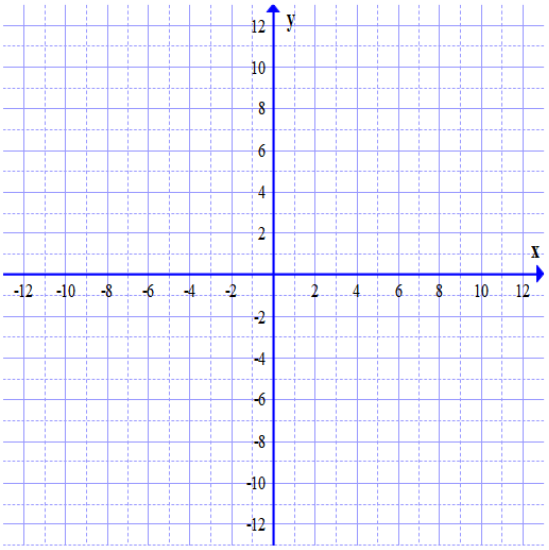
▼ Example 5: Graph $y = |x|$ by plotting points

x	y	(x,y)



▼ Example 6: Graph $y = |x - 2|$ by plotting points

x	y	(x,y)



▼ Intercepts

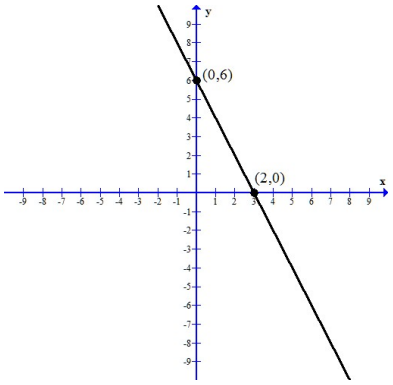
▼ Definition of an **x-intercept**

An **x-intercept** is the ordered pair where the graph crosses or touches the x-axis.

▼ Definition of a **y-intercept**

A **y-intercept** is the ordered pair where the graph crosses or touches the y-axis.

▼ Example of Finding Intercepts Graphically



▼ Finding Intercepts Algebraically

To find an x-intercept: let $y = 0$ and solve for x.

To find an y-intercept: let $y = 0$ and solve for y.

▼ Examples of Finding Intercepts Algebraically

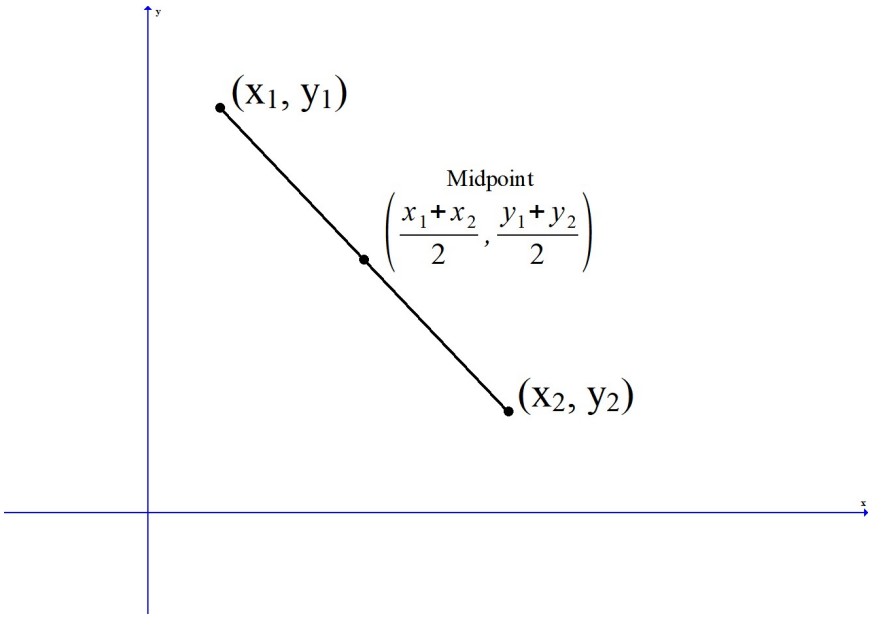
▼ Example 1: Find the x and y intercepts

$y = 5x - 6$

▼ Example 2: Find the x and y intercepts

$3x - 7y = 15$

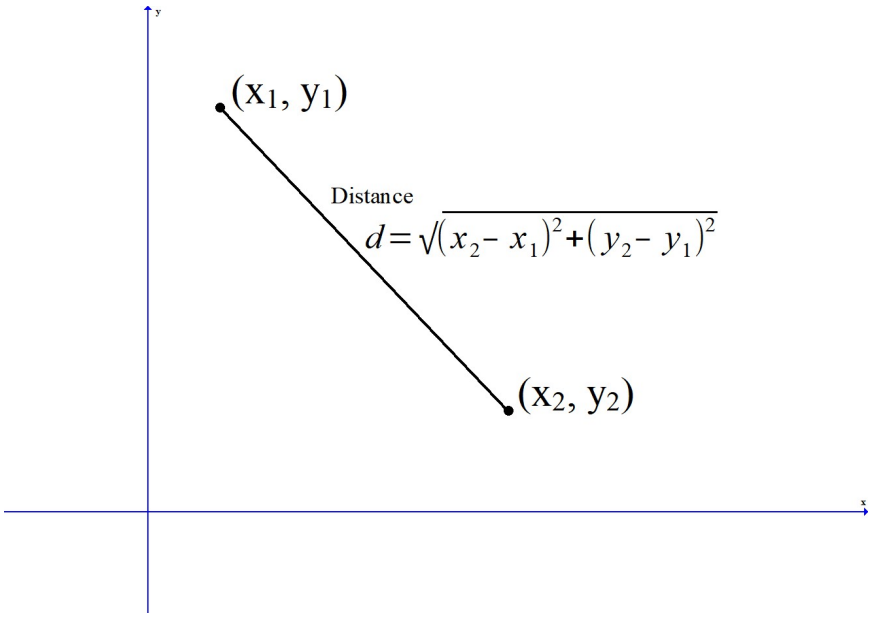
▼ Midpoint of a Line segment



▼ Example: Find the Midpoint

Find the midpoint of $(10, -3)$ and $(4, -2)$

▼ Distance Between Two Points



▼ Example: Find the distance

Find the distance between $(1, 4)$ and $(4, -2)$.